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Formation of the U.S. Air Force Aviator Post-Traumatic Stress Disorder Study Group



Joe D. Wood, III, John Heaton, Mark Hubner, Nicole Rhodes

November 2016



**Final Report
for May 2013 to July 2016**

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14. ABSTRACT The first aviator mental health study groups (post-traumatic stress disorder (PTSD) and antidepressants) were approved by the Chief of Aerospace Medicine for the Surgeon General in May 2013. Prior to 2013, few aviators were diagnosed with PTSD, and those who were rarely received a waiver to continue their flying duties. As rates of PTSD among aviators continued to climb, the U.S. Air Force sensed a need to investigate the aeromedical implications of having aviators treated for PTSD on flying status. The intent of the PTSD Study Group is to provide actionable data to Air Force leadership, flight surgeons, operational commanders, and mental and medical providers involved in the treatment of aviators with PTSD. The current work provides a summary of the aeromedical concerns regarding PTSD and delineates the goals and methods of the study group. Additionally, preliminary selective demographic and psychometric findings are presented.					
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1.0 SUMMARY

The first aviator mental health study groups (post-traumatic stress disorder (PTSD) and antidepressants) were approved by the Chief of Aerospace Medicine for the Surgeon General in May 2013. Prior to 2013, few aviators were diagnosed with PTSD, and those who were rarely received a waiver to continue their flying duties. As rates of PTSD among aviators continued to climb, the U.S. Air Force sensed a need to investigate the aeromedical implications of having aviators treated for PTSD on flying status. The intent of the PTSD study group is to provide actionable data to Air Force leadership, flight surgeons, operational commanders, and mental and medical providers involved in the treatment of aviators with PTSD. The current work provides a summary of the aeromedical concerns regarding PTSD and delineates the goals and methods of the study group. Additionally, preliminary selective demographic and psychometric findings are presented.

2.0 BACKGROUND

2.1 Historical Development of Post-Traumatic Stress Disorder

Although known to be a part of war since early recorded history, and given early names such as “battle fatigue” and “shellshock,” post-traumatic stress disorder (PTSD) first became a diagnosable condition in 1980 with the introduction of the third edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-III). With the prolonged support of Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF), American troops have been exposed to many forms of trauma, including mortar attacks and improvised explosive devices. Due to the frequent exposure to threat of injury or death for deployed troops, PTSD, along with traumatic brain injury, has been identified as a signature injury of these wars. However, little is known about the etiology and outcomes for aviators who are diagnosed with and treated for PTSD. Prior to 2000, PTSD cases in aviators were nearly non-existent. However, in the 2000s, two changes occurred that impacted prevalence of PTSD in the aviation community. The first was the definition of aviator was expanded outside of traditional aircrew. Career fields such as Special Forces personnel (e.g., pararescue jumpers, tactical air control party specialists) and air traffic controllers were now required to meet enhanced medical standards similar to traditional aircrew such as pilots, navigators, and loadmasters. In particular, Special Forces personnel were more likely to be involved in combat compared to traditional aircrew and thus more likely to have been exposed to traumatic events. The second change was the intense deployment schedules to meet the demands of OIF/OEF, and multiple studies have linked combat exposure to increased risk for development of PTSD [1].

2.2 Clinical Characteristics of PTSD

According to the DSM-5 [2], to meet diagnostic criteria for PTSD, a person must have had an exposure to an actual or threatened death, significant injury, or sexual violence. This exposure can be direct, by witnessing the event happen to someone else, learning that the event happened to a loved one, or experiencing repeated/extreme exposure to details of the event. Additionally, and relevant to U.S. Air Force (USAF) members who operate in the remotely

piloted aircraft (RPA) or intelligence arena, the exposure can occur through electronic media and pictures.

The DSM-5 breaks out symptoms for PTSD into four categories: intrusive symptoms, avoidance symptoms, negative alterations in cognitions and mood, and alterations in arousal and reactivity. To meet diagnostic criteria for PTSD, one must have a minimum of one intrusive symptom, one avoidance symptom, two symptoms involving cognitions and/or mood, and two symptoms of increased arousal/reactivity.

Intrusive symptoms include recurrent, distressing memories of the event, distressing dreams, or significant distress or physiological reactivity upon exposure to reminders of the event. Avoidance symptoms include efforts to avoid memories, thoughts, or external reminders, such as people or places related to the traumatic event. Changes in mood/cognitions include missing memory of parts of the event, negative changes in worldview, distorted cognitions about the cause of the event (self-blaming), negative emotions (e.g., horror, shame), anhedonia, feeling detached from other people, and inability to experience positive emotions. Finally, increased arousal/reactivity symptoms include irritable or self-destructive behavior, hypervigilance, exaggerated startle response, decreased concentration, and insomnia. These symptoms must occur for at least 1 month and cause clinically significant distress or impairment in one or more areas of functioning.

2.3 Recent Relevant PTSD Research

With many Vietnam veterans still suffering from symptoms of PTSD [3], there was early interest in the prevalence of PTSD symptoms for combatants in OIF and OEF. In a seminal paper from Hoge et al., PTSD symptoms were examined in U.S. soldiers and marines who responded to a survey 1 week before deployment and 3 to 4 months post-deployment. The survey included the PTSD Checklist-Military Version (PCL-M), a widely used PTSD screener. Using a cutoff score of 50 on the PCL-M and requiring that subjects endorsed at least one symptom of intrusion, three of avoidance, and two of hyperarousal, they found that 6.2% of soldiers from Afghanistan and 12.9% from Iraq met screening criteria for PTSD. For marines, the rate was 12.2% post-deployment. Additionally, they found that the prevalence of PTSD had a linear increase with the amount of firefight involvement [4]. Mott et al. found that the development of PTSD, anxiety disorders, and mood disorders was significantly associated with greater perceived threats during the deployment, even when controlling for self-reported amount of combat exposure. In a sample of 1,740 veterans screened between 2004 and 2008, 28% met criteria for PTSD [5]. Using symptom endorsement on the Post Deployment Health Reassessment, Milliken et al. found that 9.1% of returning active duty soldiers and 14.3% of Air National Guard and Reserve soldiers endorsed at least three symptoms of PTSD [6]. Long-term medical care costs for treating returning personnel with PTSD are significant, estimated at \$923 million every 2 years by Kilmer et al. [7].

Other groups of deployed members have also been examined to determine prevalence of PTSD. McLean et al. examined PTSD symptoms using the PCL on 253 USAF medics who had deployed. Using a cutoff score of 32, well below the standard cutoff score 50, they found that 23% of the sample met criteria for PTSD. Additionally, higher rates of exposure to combat and health care stress were related to increased PTSD symptoms [8]. In a survey of RPA operators, Chappelle et al. reported that RPA pilots had significantly higher PCL-M scores than a USAF non-combatant control group. Five percent of the RPA operators and 2% of the control group

had PCL-M scores greater than 50. The high-risk profile for clinical PCL-M scores included being enlisted, being less than 25 years old, having less than 2 years on station, working swing or night shifts, and working more than 50 hours per week [9]. Also examining RPA pilots, Otto and Weber found that the incidence rate of PTSD in RPA pilots was 0.9% versus 0.7% in traditional USAF pilots. Both categories of pilots had lower rates of mental health diagnoses compared to other USAF personnel and the population at large. They concluded that unmanned pilot exposure to remote warfare does not increase the risk of developing mental health issues compared to manned pilots [10].

Longitudinal studies of people treated for PTSD are scarce. Perhaps the most relevant study for our purposes is a 20-year longitudinal study of 214 Israeli combat veterans. In the study, 131 were noted to have had a combat stress reaction while 83 had not [11]. Evaluations occurred 1, 2, 3, and 20 years after the Lebanon war. The study found that veterans with a combat stress reaction were 6.6 times more likely to endorse PTSD during all four subsequent evaluations. Notably, they found that lingering symptoms of PTSD occurred frequently for both groups of combatants. Those with a combat stress reaction had a mean of 6.27 symptoms across the four evaluations, while those without a combat stress reaction still had a mean of 2.62 symptoms. Another important finding from this study was that symptoms declined for both groups from year 1 to 3, but then rose again by the final evaluation at year 20. A similar rise in symptoms during the final evaluation was also reported in a longitudinal study of PTSD in prisoners of war [12]. Thus, there is evidence that PTSD symptoms decline post-incident and then rise later in life for reasons that are not fully understood.

2.4 Aeromedical Issues Associated with PTSD

The symptoms of PTSD meet multiple criteria listed below and, as such, potentially present a hazard to flying. First, intrusive symptoms do pose a risk of sudden incapacitation. Intrusive symptoms include dissociative reactions, such as flashbacks during which the aviator could lose awareness of his or her surroundings. Intense psychological distress when exposed to cues that remind the aviator of the traumatic event is also typical of PTSD and would lead to diminished ability to function in the aviation environment. Similarly, intense distress and/or strong physiological reactions upon exposure to internal or external cues of the trauma could lead to incapacitation of a flyer. Second, negative alterations in cognitions and mood could cause subtle performance decrement. Common symptoms of PTSD that could cause minor to significant performance problems include decreased concentration, sleep disturbance, exaggerated startle response, and hypervigilance. Of concern, these symptoms are not easily detectable, and the stresses of the aviation environment could increase their negative impact. An additional operational issue with PTSD is the frequently encountered difficulty with interpersonal relationships. Irritable behavior, including anger outbursts, and feelings of detachment from others have the potential to negatively impact crew resource management. Finally, PTSD is highly comorbid with several other mental health conditions, including excessive alcohol use. Below are the standards contained in Air Force Instruction 48-123 that are used to determine if a mental health condition is waiverable.

To be considered waiverable, any disqualifying condition must meet the following criteria:

1. Not pose a risk of sudden incapacitation.

2. Pose minimal potential for subtle performance decrement, particularly with regard to the higher senses.
3. Be resolved, or be stable, and be expected to remain so under the stresses of the aviation environment.
4. If the possibility of progression or recurrence exists, the first symptoms or signs must be easily detectable and not pose a risk to the individual or the safety of others.
5. Cannot require exotic tests, regular invasive procedures, or frequent absences to monitor for stability or progression.
6. Must be compatible with the performance of sustained flying operations.

2.5 Empirically Validated Treatments of PTSD

For those aviators who do develop symptoms consistent with a diagnosis of PTSD, early treatment is advantageous. Of the possible psychotherapy modalities, two exposure-based treatments, prolonged exposure and cognitive-processing therapy, have the most empirical support [13]. Additionally, four antidepressants are currently approved for aircrew: Zoloft, Celexa, Lexapro, and Wellbutrin. Both exposure-based talk therapy and antidepressant pharmacotherapy have less than ideal drop-out rates [14]. It is common for aircrew to choose a combination therapy.

2.6 Air Force Regulations Regarding the Diagnosis of PTSD in Aviators

Although aviators are typically resilient, healthy individuals, they of course have the potential to develop psychological or medical disorders. For USAF pilots, many medical and psychiatric conditions are disqualifying for flying. To better track and ensure treatment for pilots, a medical waiver system has been developed. The disqualifying conditions are listed in the Medical Standards Directory and explained in more detail in the Aeromedical Waiver Guide. For aviators, a diagnosis of PTSD is disqualifying if it interferes with safety of flight or if the aviator is unable to return to full duty within 60 days of diagnosis and treatment. The local flight surgeon in conjunction with the mental health provider often determines when a pilot is deemed ready to return to flying status after treatment for PTSD.

In these cases, the major command (MAJCOM) Chief Flight Surgeon will often request that the pilot receive a comprehensive psychiatric evaluation at the Aeromedical Consultation Service (ACS), located at Wright-Patterson Air Force Base. These evaluations, conducted by an aerospace psychiatrist and psychologist, typically last one duty week. The evaluation includes comprehensive interviews, psychological testing, and interview with the pilot's spouse and commander. A recommendation will then be sent from the ACS to the MAJCOM regarding the aviators' suitability to return to flying status. Prior to 2010, there were very few cases of PTSD in USAF aviators. However, since that time there has been a substantial increase in the number of cases of PTSD in both officer and enlisted aircrew.

2.7 History of the PTSD Study Group

Although study groups have been common in other ACS branches, notably ophthalmology and internal medicine, no study groups had been run out of the neuropsychiatry branch. This was likely due to the perceived stigma about mental health in aviators. For example,

follow-up evaluations were common in other branches but rare in neuropsychiatry. However, sensing that the stigma was decreasing, and desiring to obtain actionable data to keep mental health standards current and relevant, the PTSD Study Group (along with the Antidepressant Study Group) was approved. Lt Col (Dr.) Lynn Berry (Chief of Physical Standards Development) notified ACS Division Chief Col (Dr.) Lee Beyer on 9 May 2013 of the study group approval. The parameters of the study group included a maximum of 50 participants and waiver renewals at 1 year, 2 years, 5 years, and 10 years from the original waiver date. It was noted that the study group would exist for a period of 10 years and be subject to Chief of Aerospace Medicine for the Surgeon General review every 5 years. With this approval, the neuropsychiatry branch staff formulated goals, questions, and hypotheses for the study group.

2.8 Purpose of the Study

PURPOSE 1: To understand the operational impact of these issues and to provide the Air Crew Standards Working Group with actionable data to assist them in keeping flight standards current and relevant through evidenced-based standards modification.

PURPOSE 2: To inform ACS provider clinical decision-making through identification of risk/protective factors of aviators with PTSD.

PURPOSE 3: To better understand unique variables in aviators, to include personality, psychological, and operational, to educate and train providers at local bases who treat and assess flyers.

QUESTION 1: What aeromedical risks are involved in allowing aviators treated for PTSD to fly?

QUESTION 2: Are aviators treated for PTSD more likely to have relapses than aviators treated for other mental health conditions?

QUESTION 3: Is higher neuroticism correlated with worse outcomes?

QUESTION 4: Is higher intelligence correlated with better outcomes?

Hypothesis 1: Aviators treated for PTSD and recommended for waiver by the ACS are no more likely than aviators with other conditions evaluated and recommended for waiver by the ACS to be subsequently put on duty not involving flying (DNIF) status or disqualified (DQ) due to psychiatric symptoms (a count of symptoms and subsequent DNIF in treatment group vs. control group; chi-square, contingency tables – possibly only descriptive stats used).

Hypothesis 2: Aviators treated for PTSD are more likely to have persisting subclinical symptoms (e.g., hypervigilance, nightmares) than aviators treated for other mental health conditions (PCL, Patient Health Questionnaire-9 (PHQ-9) and MMPI scores used; t-tests).

Hypothesis 3: Personality characteristics will be correlated with better outcomes for aviators (i.e., we expect low neuroticism to be positively correlated with better outcomes) (NEO vs. DNIF and NEO vs. PHQ-9; correlation analysis and/or logistic regression).

Hypothesis 4: Intelligence will be correlated with better outcomes for aviators (i.e., we expect higher intelligence scores will be positively correlated with better outcomes) (Multidimensional Aptitude Battery (MAB) and MicroCog vs. DNIF and MAB and MicroCog vs. PHQ-9; correlation analysis and/or logistic regression).

Hypothesis 5: Aviators with more severe presentations of PTSD will be more likely to have recurrent episodes that require DNIF/DQ (compare differences of PHQ-9 scores at baseline vs. event and baseline vs. next evaluation; t-tests, possible paired t-tests).

3.0 METHODS

3.1 Participants

Participants for the study are USAF aviators who have to meet enhanced medical standards. Although this is often referred to as being on “flying status,” some of the participants may not be involved in a flying mission. These include ground-based controllers (e.g., air traffic controllers) and missileers. Participants are referred to the ACS through the MAJCOM’s flight surgeon office. Like any aviator’s case reviewed by the ACS neuropsychiatry branch, these flyers have a disqualifying mental health condition and need a waiver to continue their flying duties. The ACS neuropsychiatry branch provides an objective, comprehensive mental health evaluation. This evaluation entails multiple hours of clinical interviews by multiple providers (e.g., psychologist, psychiatrist, Resident in Aerospace Medicine), neuropsychological testing, and collateral interviews. The evaluation yields a recommendation (i.e., return to flying status vs. continued DNIF or DQ) to the MAJCOM.

Participants in the PTSD Study Group are aviators diagnosed and treated for PTSD who are referred to the ACS for evaluation by the MAJCOM. Prior to the evaluation, the potential evaluatees’ records are reviewed by ACS staff members. Only potential evaluatees who have successfully completed treatment and have documented stability for at least 6 months are seen by the ACS. Thus, those aviators with significant ongoing symptoms of PTSD would not be seen at the ACS or entered into the PTSD Study Group.

There are currently 32 aviators in the study (see Figure 1), all of whom have been evaluated at least one time for PTSD. Of these, 21 (66%) are enlisted and 11 (34%) are officers. Twenty-seven (84%) are male and 5 (16%) are female. The average age and years of education for this population are 34 and 16, respectively. There are five pilots (16%), five tactical air control party specialists/joint terminal attack controllers (16%), four loadmasters (13%), three air traffic controllers (9%), three pararescue jumpers (9%), three flight surgeons (9%), and two sensor operators (6%), with several other Air Force Specialty Codes represented with one subject in the study currently. In general, battlefield airmen are overrepresented in the study, which is expected given their exposure to combat.

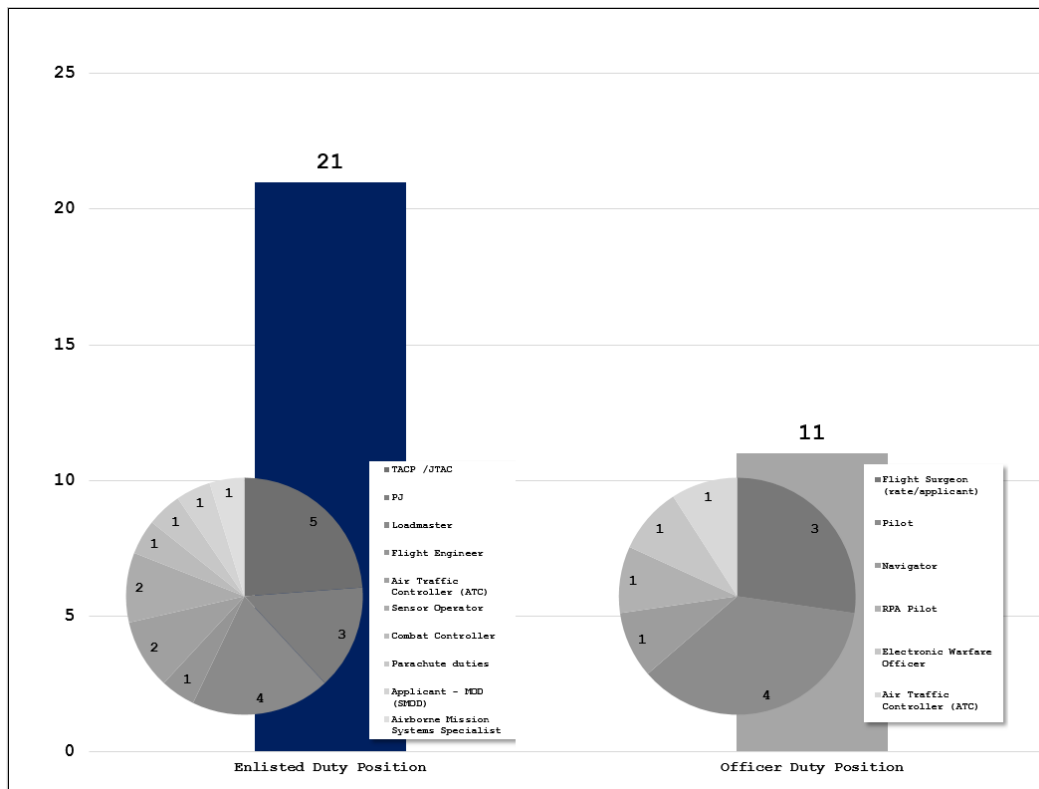


Figure 1. Duty positions of enlisted and officer personnel evaluated at the ACS for PTSD.

3.2 Instruments Utilized

3.2.1 PTSD Aviator Study Group Questionnaire. A questionnaire (see Appendix) was designed to gather data regarding treatment history and current mental health symptoms. In addition, two routinely used psychological measures were included in the questionnaire. One is the PCL-5. It is a pen-and-paper self-report measure of PTSD symptoms. It corresponds to the diagnostic criteria from DSM-5. It has demonstrated good reliability and validity [15]. The other measure is the PHQ-9, which is a pen-and-paper self-report measure of depressive symptoms that is currently routinely used in USAF mental health clinics to assess for psychopathology and to track treatment gains. It has demonstrated very good sensitivity and specificity for major depression [16].

3.2.2 MAB-II. The MAB-II is a multi-scale measure of intellectual ability based on the Wechsler Adult Intelligence Scale-Revised (correlation 0.91) [17,18]. This is a computer-administered test that yields three summary scores [full scale intelligence quotient (FSIQ), verbal IQ (VIQ), and performance IQ (PIQ)] based on subtests of vocabulary, arithmetic, information, comprehension, similarities, digit symbol, picture arrangement, object assembly, picture completion, and spatial thinking. Similar to the Wechsler Adult Intelligence Scale-Revised, the MAB-II FSIQ, VIQ, and PIQ scores are standardized to age with a mean of 100 and a standard deviation of 15. Measures of reliability and construct validity for FSIQ have been demonstrated.

3.2.3 MicroCog. The MicroCog is a computer-based neurocognitive assessment test that consists of 18 subtests used to derive 9 index scores. Level 1 indexes include the five domains of reaction time, memory, attention and control, reasoning and calculation, and spatial processing [19]. Level 2 indexes assess overall information processing speed and information processing accuracy, while Level 3 indexes represent global neurocognitive functioning with general cognitive functioning weighing speed and accuracy equally and general cognitive proficiency weighing accuracy over speed [20,21]. MicroCog derived scores show good consistency with other neuropsychological instrument batteries [22].

3.2.4 Minnesota Multiphasic Personality Inventory-2 (MMPI-2). The MMPI-2 is a 567-item psychological questionnaire. It is unique in its longevity and its use of a true/false forced response set. Its clinical utility is to identify the presence of distress and psychopathology. It has multiple validity and clinical measures. The clinical measures include hypochondriasis, depression, conversion hysteria, psychopathic deviate, masculinity-femininity, paranoia, psychasthenia, schizophrenia, hypomania, and social introversion [23].

3.2.5 NEO Personality Inventory-3 (NEO-PI-3). The NEO-PI-3 is a personality inventory with 240 items that have Likert-scale responses. It measures 30 facets that are grouped into 5 domains [24]: neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness (Table 1). In contrast to the MMPI-2, the NEO-PI-3 assesses normal elements of personality rather than psychopathology.

Table 1. Domain Definitions and Reliabilities of the NEO-PI-3

Domain	Definition
Neuroticism (N)	The tendency to experience negative emotions (anger, sadness, fear) and be emotionally unstable
Extraversion (E)	The enjoyment of social situations, excitement, and stimulation
Openness (O)	A willingness to explore new ideas and values; desire for aesthetics
Agreeableness (A)	The desire to sympathize with and help others
Conscientiousness (C)	Seeking a high level of organization and planning; the tendency to plan carefully and exercise self-discipline

4.0 RESULTS

4.1 Recommendations

Twenty-nine of the 32 subjects were recommended for waiver to return to flying/controlling status subsequent to the ACS evaluation (Figure 2). One was DQ, while two remained DNIF due to symptomology requiring further treatment.

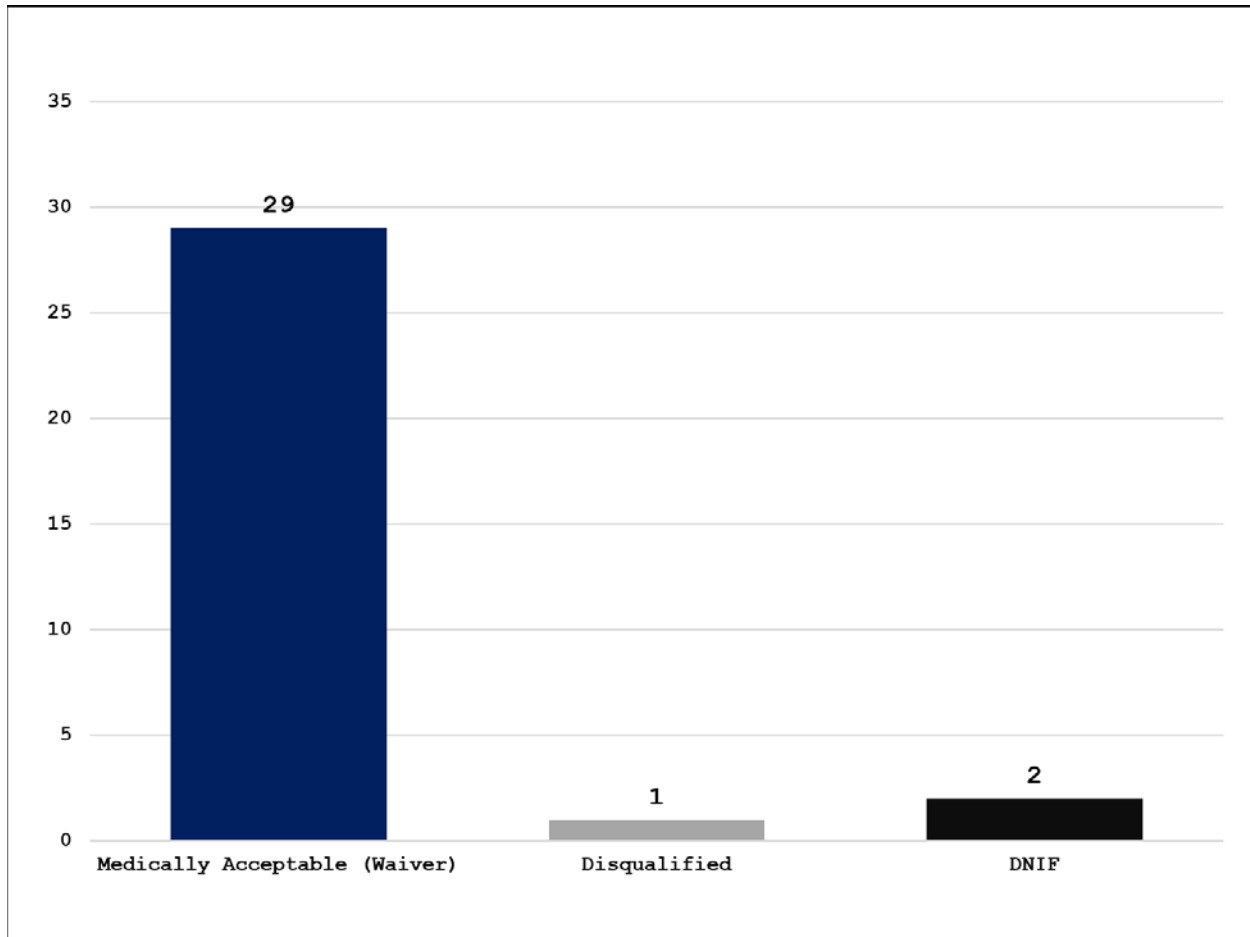


Figure 2. Aeromedical waiver outcome of enlisted and officer personnel evaluated at the ACS for PTSD.

4.2 Intelligence Test Scores

For officers, intelligence scores on the MAB-II were in the superior to very superior range for VIQ, PIQ, and FSIQ (Figure 3). These scores are higher than for the typical officer evaluated at the ACS. For enlisted members, scores were in the high-average range across the same measures. In contrast to officer results, the enlisted results were slightly below typical scores seen at the ACS.

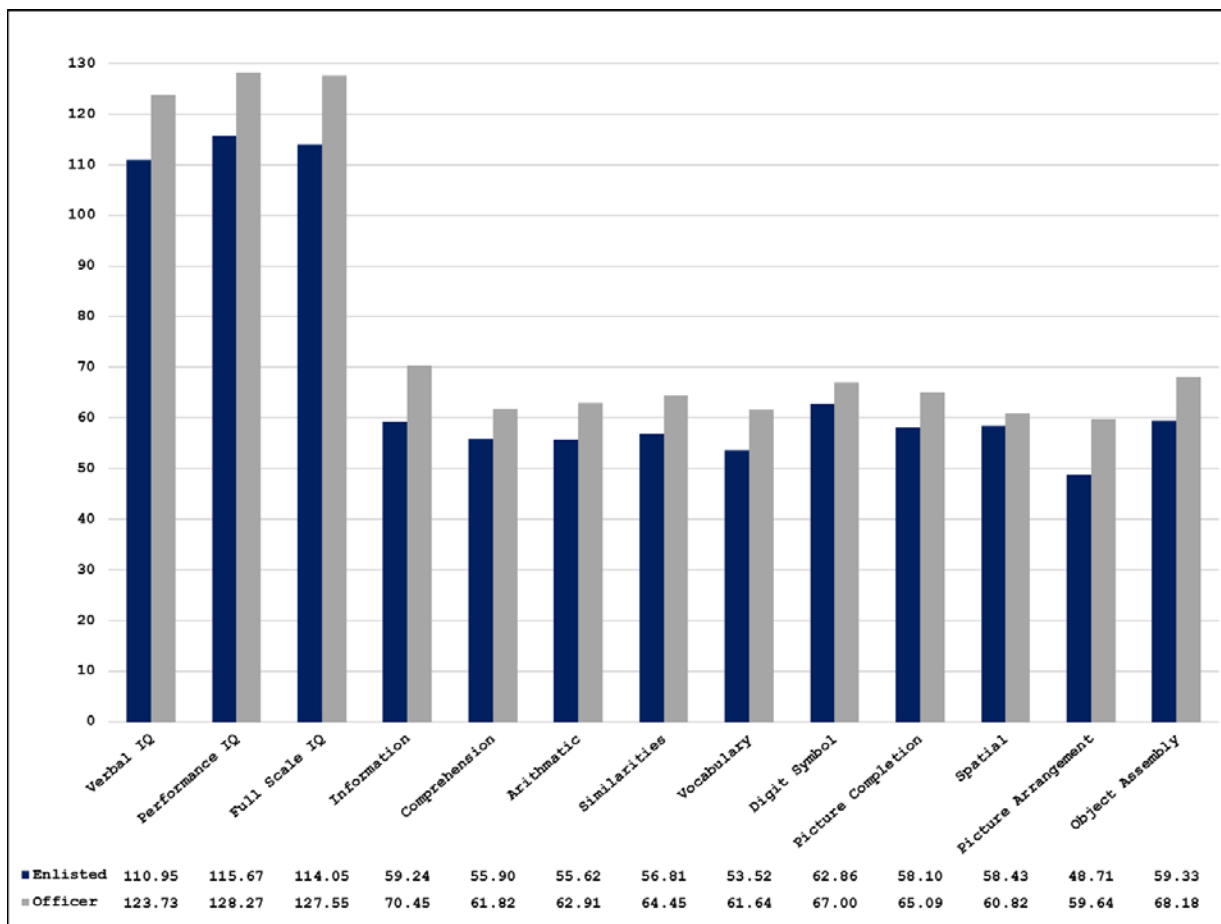


Figure 3. MAB-II age/education corrected mean scores for enlisted and officer personnel evaluated at the ACS for PTSD.

4.3 Neurocognitive Test Scores

Officer scores tended to be in the high-average range across various neurocognitive measures (Figure 4). Similar to intelligence testing, officer results were better than their peers evaluated at the ACS. For enlisted members, scores were again slightly below expectations compared to normative data. However, enlisted performance across domains was in the average range. The one exception was on the reasoning/calculation domain, on which they performed in the low-average range.

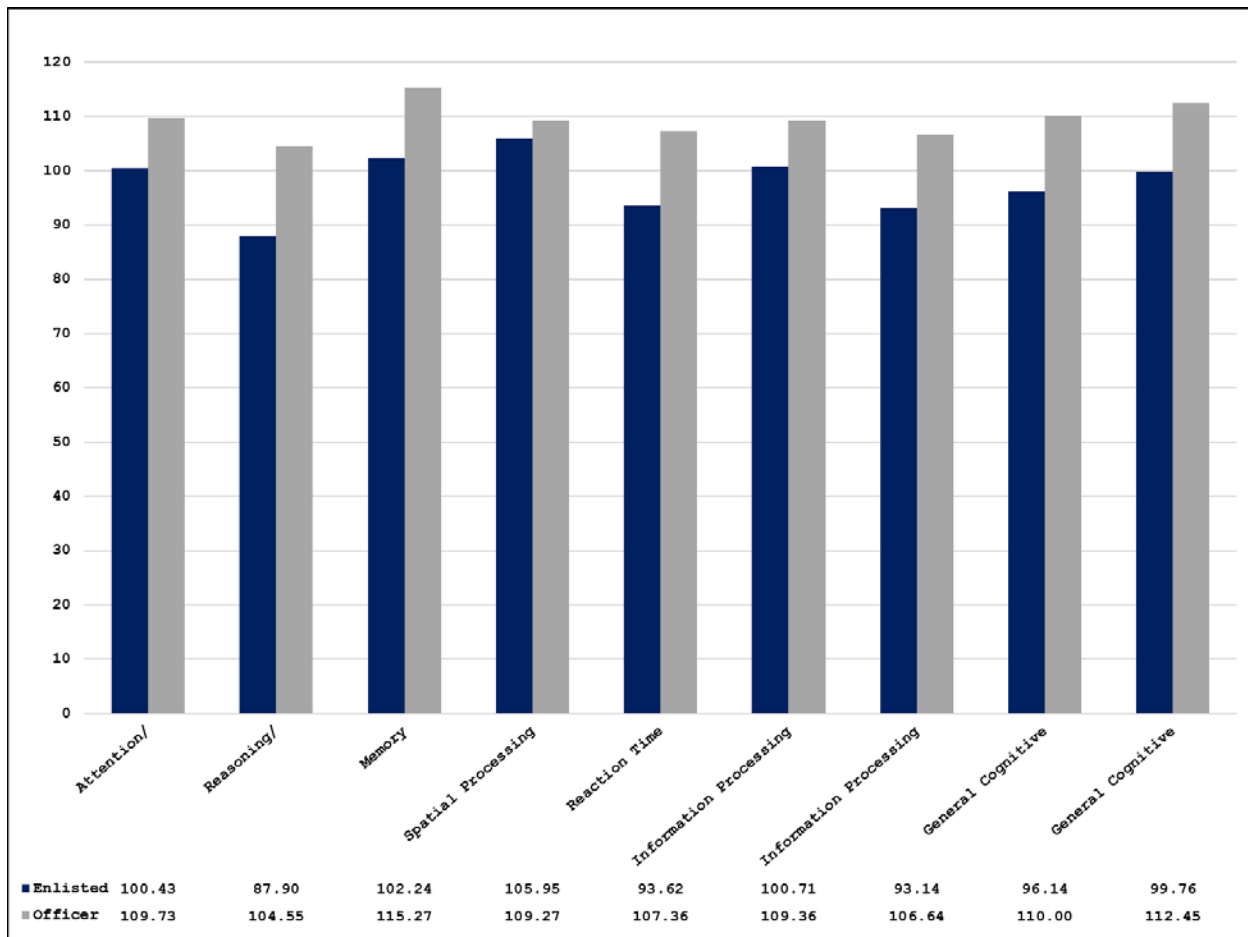


Figure 4. MicroCog age/education corrected mean scores for enlisted and officer personnel evaluated at the ACS for PTSD.

4.4 Personality Measures

Compared to the general population, both officers and enlisted members were in the average range in neuroticism, extraversion, and agreeableness (Figure 5). However, officers were in the high-average range in openness to experience and conscientiousness compared to the general population. Compared to normative values for officers evaluated at the ACS, officer subjects endorsed slightly higher neuroticism, slightly higher conscientiousness, and much higher openness to experience. Compared to their peers, enlisted members endorsed slightly higher neuroticism, lower extraversion, higher openness to new experience, lower agreeableness, and higher conscientiousness. For a more thorough breakdown of facet scores, please refer to Figures 6-10.

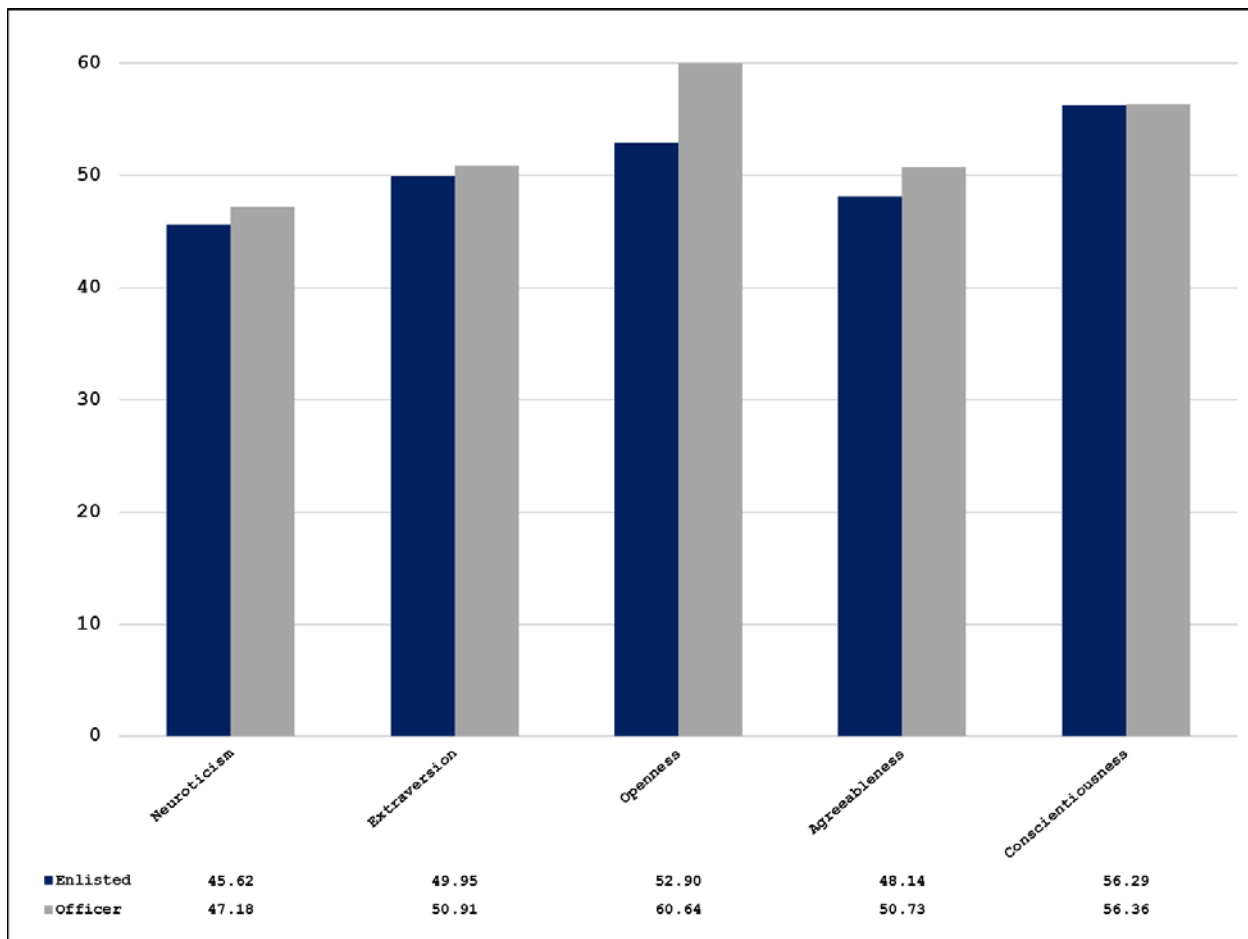


Figure 5. NEO-PI-3 domain mean T-scores for enlisted and officer personnel evaluated at the ACS for PTSD.

4.5 Psychological Measure

Both groups had validity scores that were in the high-average range compared to the general population (Figure 11). However, they were similar to their peers in their level of guardedness as measured by scales L and K. No clinical scales were elevated in aggregate on the MMPI-2 for officers or enlisted members. However, both groups endorsed much higher levels of interpersonal sensitivity (scale 6) than their peers. Enlisted members also endorsed many more relational problems (scale 4) than either officers in the study group or enlisted members evaluated at the ACS.

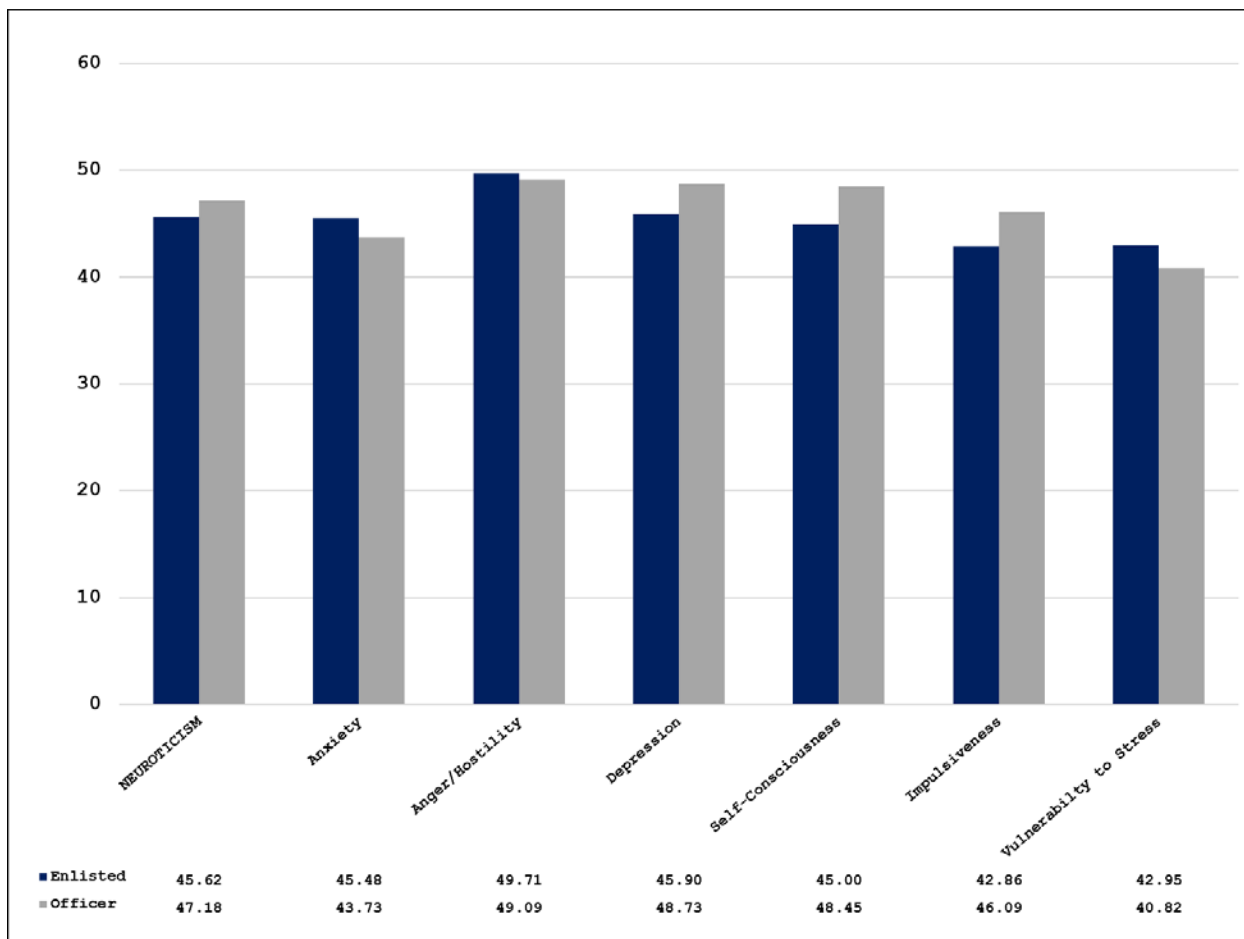


Figure 6. NEO-PI-3 neuroticism domain and facet mean T-scores for enlisted and officer personnel evaluated at the ACS for PTSD.

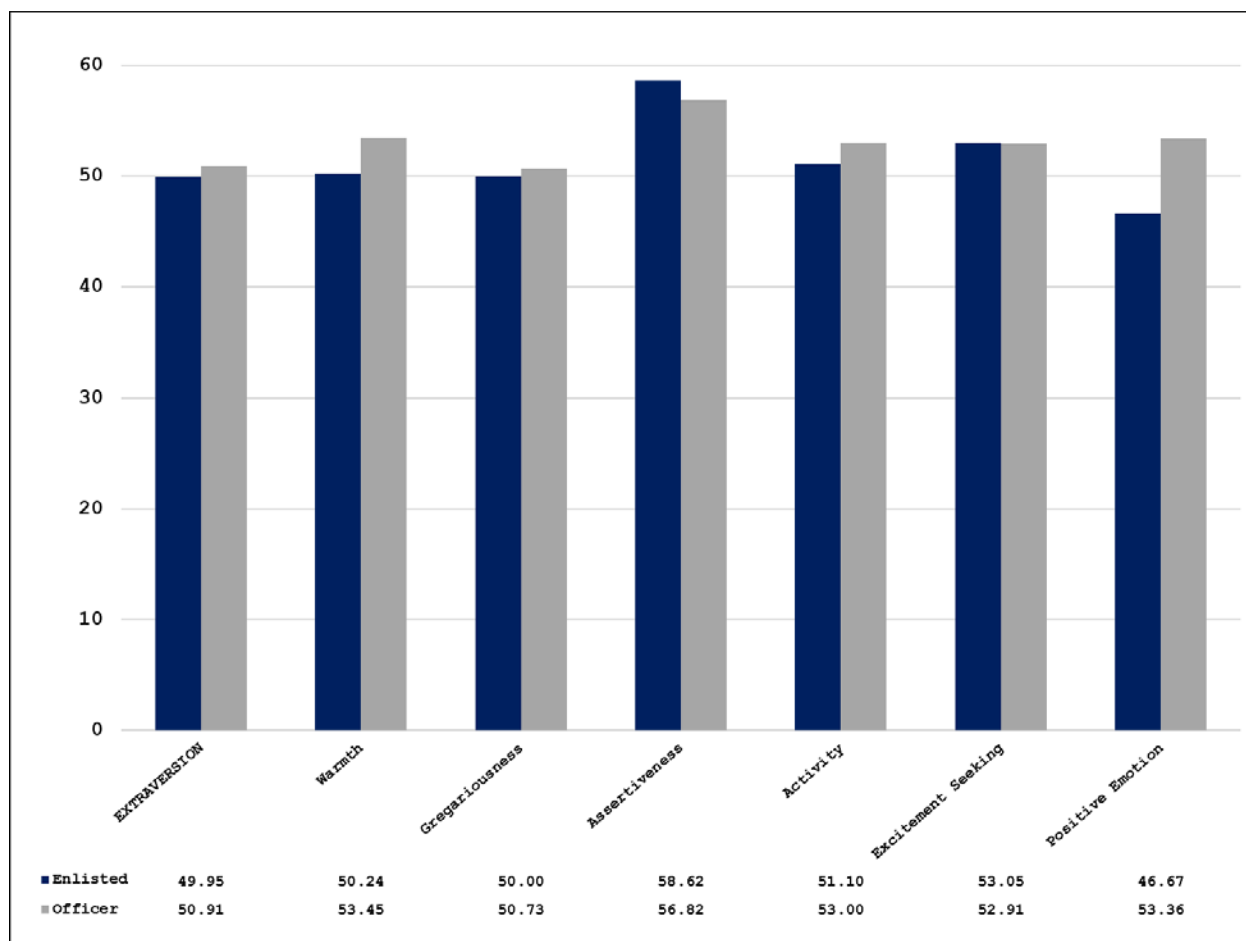


Figure 7. NEO-PI-3 extraversion domain and facet mean T-scores for enlisted and officer personnel evaluated at the ACS for PTSD.

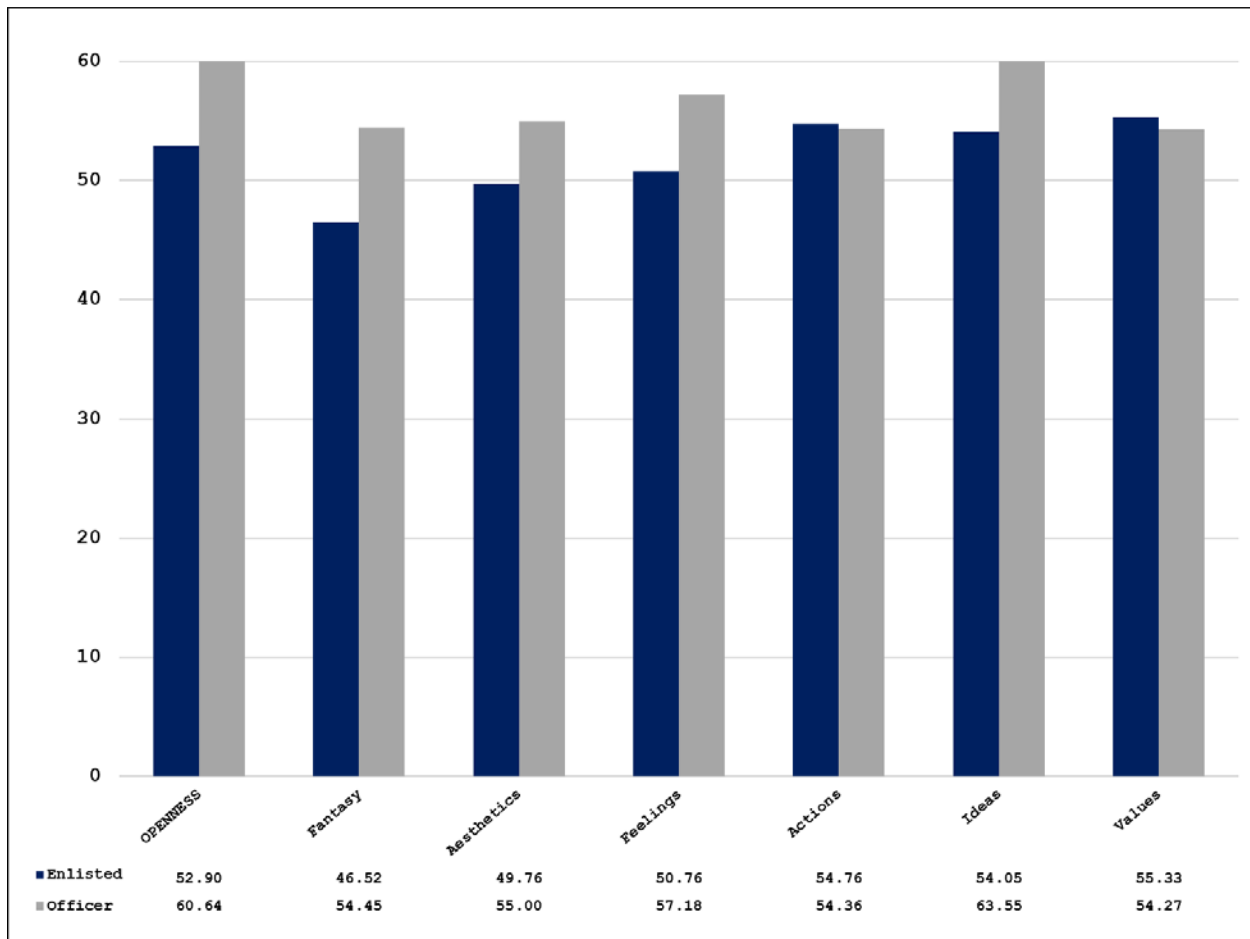


Figure 8. NEO-PI-3 openness domain and facet mean T-scores for enlisted and officer personnel evaluated at the ACS for PTSD.

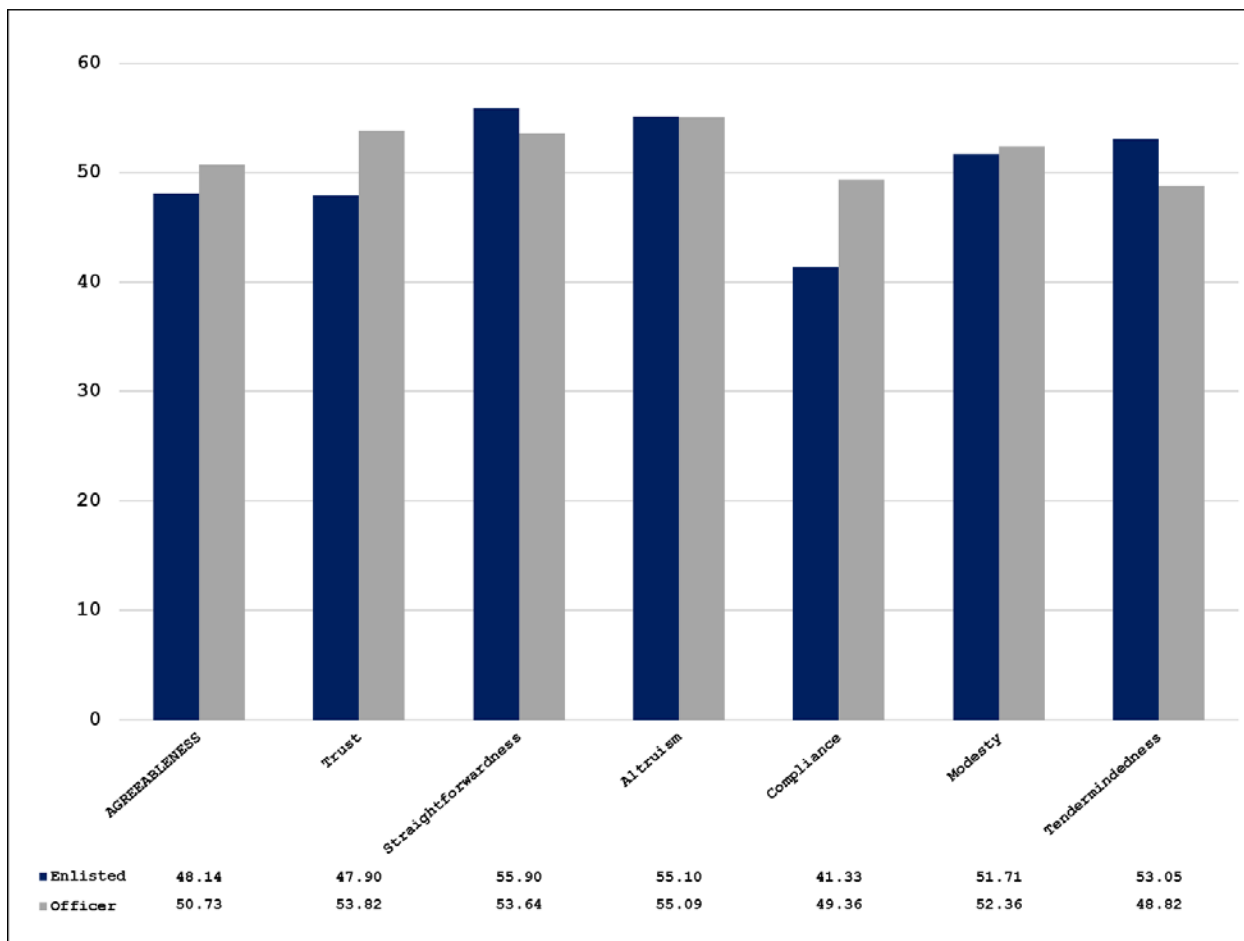


Figure 9. NEO-PI-3 agreeableness domain and facet mean T-scores for enlisted and officer personnel evaluated at the ACS for PTSD.

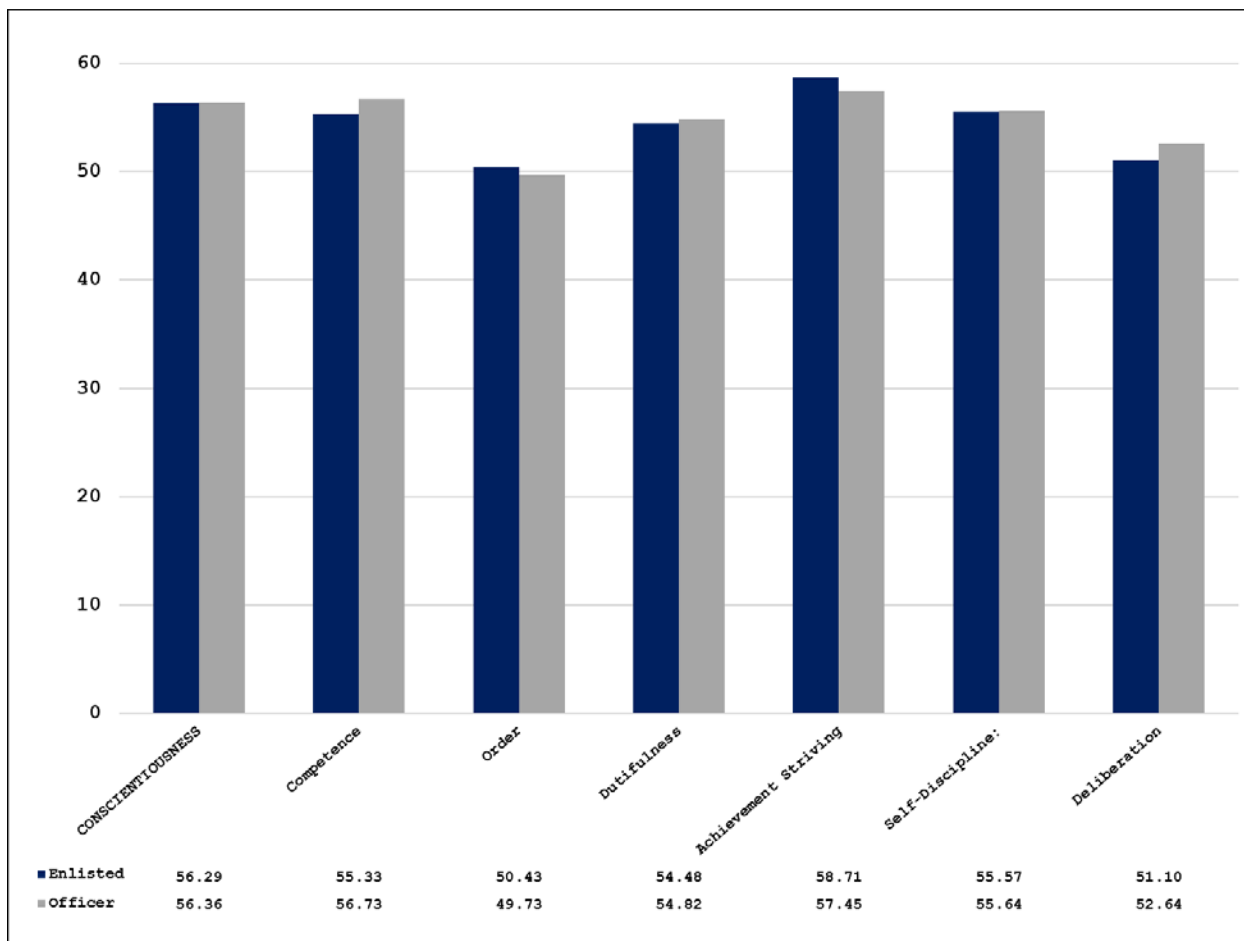


Figure 10. NEO-PI-3 conscientiousness domain and facet mean T-scores for enlisted and officer personnel evaluated at the ACS for PTSD.

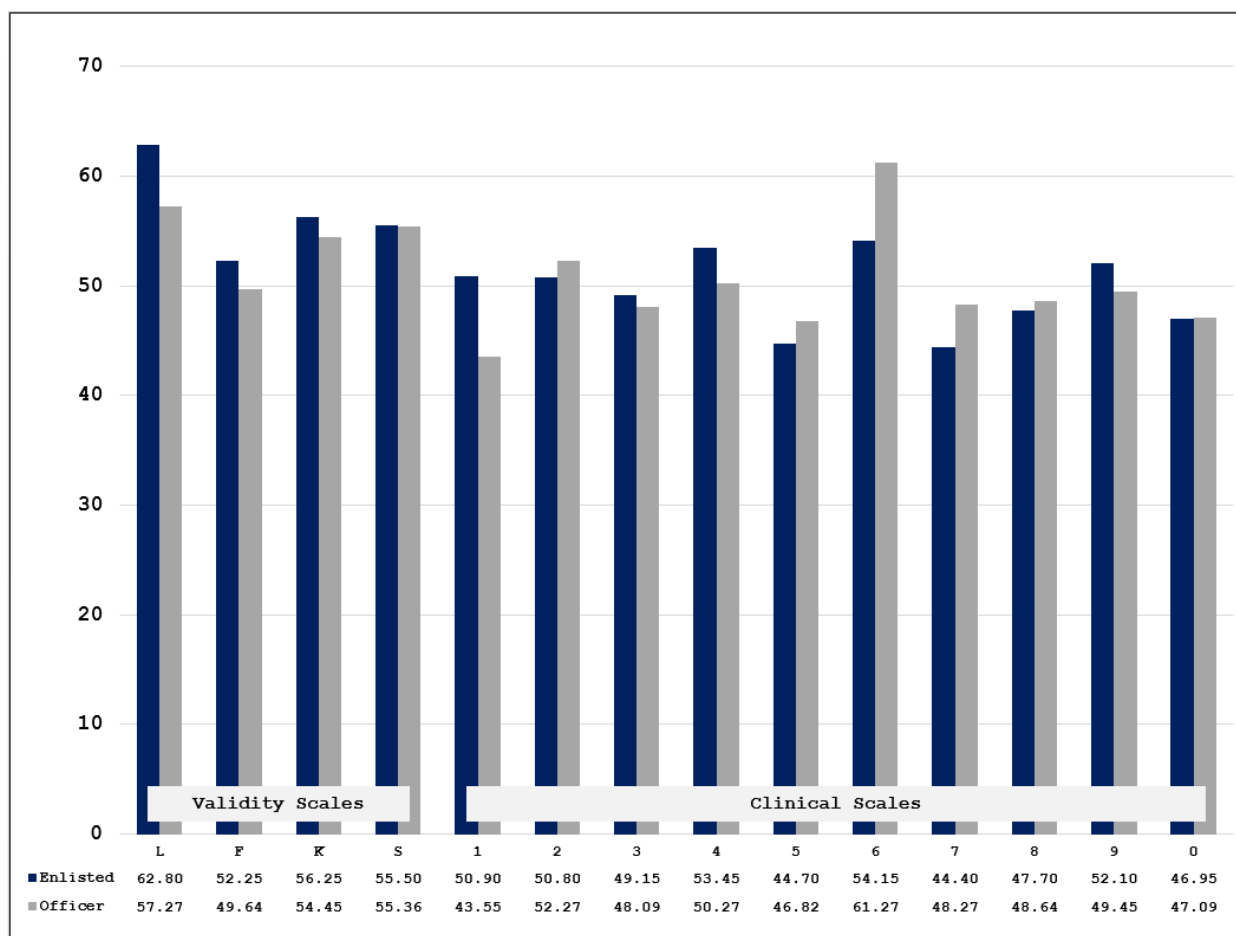


Figure 11. MMPI-2 non-k corrected mean T-scores for enlisted and officer personnel evaluated at the ACS for PTSD.

5.0 DISCUSSION

The 32 subjects currently in the PTSD Study Group represent a broad swathe of USAF aviators. Of these, 90% received waiver recommendations at the ACS to return to flying status, suggesting they had been successfully treated and did not have duty-interfering symptoms present. As expected, officers in the group had higher scores than enlisted members on intellectual and neurocognitive testing. However, enlisted scores fell in the high-average range, well above averages from the general population. Personality scores also differed between officers and enlisted, with enlisted members endorsing notably higher extraversion, openness to experience, and agreeableness. These are considered baseline findings for this study, and additional, serial evaluations of these subjects will need to be accomplished to address the questions this study is attempting to answer. Statistical methods will be utilized to analyze data as they become available.

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APPENDIX

PTSD Study Group Questionnaire



USAF/SG Directed Aircrew Standards Study Group: Posttraumatic Stress Disorder

This section of the survey asks for information regarding your treatment for PTSD. If you are unclear of how to respond, make a note of it on the survey, and we'll get clarification during our interview.

1. Please indicate all the provider(s), their affiliations, treatment settings, number of sessions received, and the modality of therapies in which you have received treatment for PTSD?

Type of Provider (Psychiatrist, Psychologist, Counselor, Social Worker, Marriage and Family Therapist, Other [describe])	AD/CIV/ Contractor/ Off- base provider	Treatment Setting (Mental Health Clinic, Mil OneSource, BHOP, MFLAC)	# of Sessions	Modality (Individual, Couple, and/or Family Therapy)	Effectiveness Rate the overall effectiveness/ helpfulness of therapy (low) 0 - 10 (high)
Example: Psychologist	Active Duty	Mental Health Clinic	10	Individual	7

2. Please indicate any family history of mental illness:

Person: _____	Problem/Diagnosis: _____	
Person: _____	Problem/Diagnosis: _____	
Person: _____	Problem/Diagnosis: _____	
Person: _____	Problem/Diagnosis: _____	

3. How were you initially referred for mental health care: **Self / Provider / Other:** _____

4. Rate your compliance with treatment recommended by your provider (making appointments, completing homework, engaging in recommended activities):

0	1	2	3	4	5	6	7	8	9	10
Extremely Low					Moderate					Extremely High

5. Please describe what you have learned in therapy: _____

6. Please describe the "helpers" or "hindrances" in obtaining care for PTSD? _____

7. Rate the overall effectiveness/helpfulness of therapy:

0	1	2	3	4	5	6	7	8	9	10
Extremely Low					Moderate					Extremely High

8. What healthy lifestyle changes have you made (check all that apply):

<input type="checkbox"/> Exercise	<input type="checkbox"/> Paced/Deep breathing
<input type="checkbox"/> Healthy eating	<input type="checkbox"/> Relaxation/meditation/solitude
<input type="checkbox"/> Activities that promote healthy relationships	<input type="checkbox"/> Volunteerism/service to others
<input type="checkbox"/> Spiritual pursuits/prayer	<input type="checkbox"/> Reduced alcohol use
<input type="checkbox"/> Reading "self-help" books	<input type="checkbox"/> Avoiding unhealthy relationships/situations
<input type="checkbox"/> Journaling	<input type="checkbox"/> Reduced nicotine use
<input type="checkbox"/> Reduced caffeine use	<input type="checkbox"/> Other: _____

9. Rate the overall effectiveness/helpfulness of implementing these lifestyle changes):

0	1	2	3	4	5	6	7	8	9	10
Extremely Low					Moderate					Extremely High

Functional impact of PTSD:

1. Please describe any problems at your WORK due to symptoms of PTSD: _____

2. Please describe any problems at your HOME due to symptoms of PTSD: _____

3. How many total DNIF/DNIC periods (related to PTSD) have you had? Before treatment: _____ Currently: _____

4. Please detail the amount of work time you have missed due to PTSD symptoms:

	Before Treatment (days)	After Treatment (days)	Please describe (symptoms, difficulties, etc.)
Mental Health Symptoms:			
Physical Symptoms:			
Obtaining mental health treatment:			

5. "My PTSD symptoms have negatively impacted my general health" (PRIOR to treatment):

0	1	2	3	4	5	6	7	8	9	10
Strongly Disagree					No Impact					Strongly Agree

6. "My PTSD symptoms have negatively impacted my general health" (AFTER treatment):

0	1	2	3	4	5	6	7	8	9	10
Strongly Disagree					No Impact					Strongly Agree

For Administrative Use Only:

1. Describe the type of treatment provided: (Multiple)

- a. CBT
- b. Exposure-based Therapy (PE, CPT)
- c. Supportive
- d. Marital
- e. Family
- f. Psychotropic
- g. Psychodynamic

2. Please describe any recommendations or treatment plan made by by treating provider: _____

3. Please describe the recommended course/time frame for treatment: _____

PATIENT HEALTH QUESTIONNAIRE-9 (PHQ-9)

Over the last 2 weeks, how often have you been bothered by any of the following problems?
(Use "✓" to indicate your answer)

	Not at all	Several days	More than half the days	Nearly every day
1. Little interest or pleasure in doing things	0	1	2	3
2. Feeling down, depressed, or hopeless	0	1	2	3
3. Trouble falling or staying asleep, or sleeping too much	0	1	2	3
4. Feeling tired or having little energy	0	1	2	3
5. Poor appetite or overeating	0	1	2	3
6. Feeling bad about yourself — or that you are a failure or have let yourself or your family down	0	1	2	3
7. Trouble concentrating on things, such as reading the newspaper or watching television	0	1	2	3
8. Moving or speaking so slowly that other people could have noticed? Or the opposite — being so fidgety or restless that you have been moving around a lot more than usual	0	1	2	3
9. Thoughts that you would be better off dead or of hurting yourself in some way	0	1	2	3

FOR OFFICE CODING 0 + + +
=Total Score:

If you checked off any problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?

Not difficult at all <input type="checkbox"/>	Somewhat difficult <input type="checkbox"/>	Very difficult <input type="checkbox"/>	Extremely difficult <input type="checkbox"/>
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PCL-5

Instructions: This questionnaire asks about problems you may have had after a very stressful experience involving actual or threatened death, serious injury, or sexual violence. It could be something that happened to you directly, something you witnessed, or something you learned happened to a close family member or close friend. Some examples are a serious accident; fire; disaster such as a hurricane, tornado, or earthquake; physical or sexual attack or abuse; war; homicide; or suicide.

First, please answer a few questions about your worst event, which for this questionnaire means the event that currently bothers you the most. This could be one of the examples above or some other very stressful experience. Also, it could be a single event (for example, a car crash) or multiple similar events (for example, multiple stressful events in a war-zone or repeated sexual abuse).

Briefly identify the worst event (if you feel comfortable doing so): _____

How long ago did it happen (date)? _____ (Please estimate if you are not sure)

Did it involve actual or threatened death, serious injury, or sexual violence?

☐ Yes

☐ No

How did you experience it?

☐ It happened to me directly

☐ I witnessed it

☐ I learned about it happening to a close family member or close friend

☐ I was repeatedly exposed to details about it as part of my job (for example, paramedic, police, military, or other first responder)

☐ Other, please describe _____

If the event involved the death of a close family member or close friend, was it due to some kind of accident or violence, or was it due to natural causes?

☐ Accident or violence

☐ Natural causes

☐ Not applicable (the event did not involve the death of a close family member or close friend)

Second, keeping this worst event in mind, read each of the problems on the next page and then circle one of the numbers to the right to indicate how much you have been bothered by that problem in the past month.

<i>In the past month, how much were you bothered by:</i>	Not at all	A little bit	Moderately	Quite a bit	Extremely
1. Repeated, disturbing, and unwanted memories of the stressful experience?	0	1	2	3	4
2. Repeated, disturbing dreams of the stressful experience?	0	1	2	3	4
3. Suddenly feeling or acting as if the stressful experience were actually happening again (<i>as if you were actually back there reliving it</i>)?	0	1	2	3	4
4. Feeling very upset when something reminded you of the stressful experience?	0	1	2	3	4
5. Having strong physical reactions when something reminded you of the stressful experience (<i>for example, heart pounding trouble breathing, sweating</i>)?	0	1	2	3	4
6. Avoiding memories, thoughts, or feelings related to the stressful experience?	0	1	2	3	4
7. Avoiding external reminders of the stressful experience (<i>for example, people, places, conversations, activities, objects, or situations</i>)?	0	1	2	3	4
8. Trouble remembering important parts of the stressful experience?	0	1	2	3	4
9. Having strong negative beliefs about yourself, other people, or the world (<i>for example, having thoughts such as: I am bad, there is something seriously wrong with me, no one can be trusted, the world is completely dangerous</i>)?	0	1	2	3	4
10. Blaming yourself or someone else for the stressful experience or what happened after it?	0	1	2	3	4
11. Having strong negative feelings such as fear, horror, anger, guilt, or shame?	0	1	2	3	4
12. Loss of interest in activities that you used to enjoy?	0	1	2	3	4
13. Feeling distant or cut off from other people?	0	1	2	3	4
14. Trouble experiencing positive feelings (<i>for example, being unable to feel happiness or have loving feelings for people close to you</i>)?	0	1	2	3	4
15. Irritable behavior, angry outbursts, or acting aggressively?	0	1	2	3	4
16. Taking too many risks or doing things that could cause you harm?	0	1	2	3	4
17. Being "superalert" or watchful or on guard?	0	1	2	3	4
18. Feeling jumpy or easily startled?	0	1	2	3	4
19. Having difficulty concentrating?	0	1	2	3	4
20. Trouble falling or staying asleep?	0	1	2	3	4

LIST OF ABBREVIATIONS AND ACRONYMS

ACS	Aeromedical Consultation Service
DNIF	duty not involving flying
DQ	disqualified
DSM	Diagnostic and Statistical Manual of Mental Disorders
FSIQ	full scale intelligence quotient
MAJCOM	major command
OEF	Operation Enduring Freedom
OIF	Operation Iraqi Freedom
PCL-M	PTSD Checklist-Military Version
PHQ-9	Patient Health Questionnaire-9
PIQ	performance intelligence quotient
PTSD	post-traumatic stress disorder
RPA	remotely piloted aircraft
USAF	U.S. Air Force
VIQ	verbal intelligence quotient